

Work Order ID 139623 - 2

Monday, November 30, 2015 11:08:56 AM

139623

Page 1

Item ID: D3529-1

Accept

N900040100

Setup Start

NS1

Revision ID: 244

Item Name: Bearpaw

Stop

NS2

Start Date: 11/30/2015 Start Qty: 4.00

Required Date: 11/30/2015 Req'd Qty: 4.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan: MJS

Date: DEC 03 2015

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

NR1

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3529	Rev A								
110	FLOW WATER JET	0.00							
110									
Waterjet	Memo	0.01							
FLOW CNC Waterjet	CUT BLANK AS PER FILE D3529-1BLANK								
120	HAAS CNC VERTICAL MACHINING #1	0.00							
120									
HAAS 1	Memo	0.04							
HAAS CNC vertical machine #1	1-Inspect material for defects or damage prior to machining 2-Machine as per Folio FA645 and Dwg D35293-Deburr								
130	QC2- Inspect parts off machine FAI/FAIB	0.00							
130									
QC	Memo	0.00							
Quality Control									

③ 16/02/09

2 4 DAS 44 9-89 16/02/18

2 4 DAS 44 9-89 16/02/18

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>139623</u> Part No. <u>D3529-1</u> NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☒ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging Supplier ☐ Engineering Quality Other ☐						
Date: <u>16/2/18</u>		Step #: <u>120</u>		QTY Effective: <u>①</u>		MRB (MSI042) Approval <u>12</u> <u>9-89</u> <u>16/2/18</u>				
Description Work Order Deviation				Disposition						
<u>0.950 dim at aft end is 0.936.</u>				<u>Acceptable. Not critical stress area.</u> <u>Remaining dims are OK.</u>						
				Completed By <u>12</u> <u>9-89</u> <u>16/2/18</u>						
				Lead hand / Supervisor Approval Verification <u>DAS</u> <u>14</u> <u>9-89</u> <u>16/02/18</u>						
				QC / QA Coordinator Approval <u>DAS</u> <u>9</u> <u>9-89</u> <u>16-02-18</u>						
Root Cause		FAULT CATEGORY								
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☒	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☒	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	☐							
Misidentified	☐	Past Due	☐	OTHER :						

Work Order ID 139623

139623

Page 2

Monday, November 30, 2015 11:08:56 AM

Item ID: D3529-1 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Bearpaw
 Start Date: 11/30/2015 Start Qty: 4.00 *4* Cust Item ID:
 Required Date: 11/30/2015 Req'd Qty: 4.00 *4* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00				2	0		DAS 20 16-02-19 9-89
140									
QC	Memo	0.00							
Quality Control									
150	Identify as per dwg & Stock Location: <u>Sold</u>	0.00				2			DAS 6 9-89 FEB 19 2016
150									
Packaging	Memo	0.00							
Packaging									
160	QC21- Final Inspection - Work Order Release	0.00							
160									
QC	Memo	0.01							
Quality Control									

ML5 FEB 19 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (Q51042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

Monday, November 30, 2015 11:08:55 AM

Page 1

Work Order ID: 139623

139623

Parent Item: D3529-1

D3529-1

Parent Item Name: Bearpaw

Start Date: 11/30/2015

Required Date: 11/30/2015

Start Qty: 4.00

Required Qty: 4.00

Comments:

IPP Rev:A New Issue- 06-06-28 JLM

IPP Rev:B New Manufacturing Method 08-11-27 Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MUHMWB10		Purchased	No			100	sf	446.4000	1.265	5.326316			

MUHMWB10

UHMW 1" Black - 48"x120" Tivar Mfg.#52480104

**

pc 16/02/15

Location

Loc Qty

Loc Code

MAT018

446.4

m133248

46.4

m133642

400

15



Work Order update only ☐

Work Order: _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Water Jet ☐ Engineering ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐							
Part No. _____				Date :		Step #:		QTY Effective :		MRB (QSI042) Approval	
NCR No. _____				Description Work Order Deviation		Disposition				Completed By	
										Lead hand / Supervisor Approval Verification	
		QC / QA Coordinator Approval									
Root Cause Environment ☐ No Re-verification ☐ Design ☐ Operator ☐ Doc/Data ☐ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Temperature/Cure ☐ Power Loss/Surge ☐ Positioned Wrong ☐ Bending ☐ Set-up ☐ Folio/Program ☐ Outside Dimensions ☐ Centre Not Concentric ☐ BOM/Route ☐ Grain ☐ Over/Under tolerance ☐ Cracks ☐ Broken/Damage/Defect ☐ Weld ☐ Part Incorrect ☐ Crimp/Kink/Ripple/Wave ☐ Inspection Incomplete/Unqualified ☐ Wrong Stock Pulled ☐ Part Lost/Missing ☐ Cuffs ☐ Contamination ☐ Out of Sequence ☐ Part Moved ☐ Crushing ☐ Countersink ☐ Off-set ☐ Drawing ☐ Heat Treat ☐ Cut Too Short ☐ Mislabeled ☐ Finish ☐ Wave/Twist in Tube ☐ Instructions Incomplete/Unclear ☐ Fit/Function ☐ Misread ☐ Marks/Chatter ☐ Drill Holes ☐ Misaligned/off center ☐ Turning Sequence ☐									
		OTHER :									

DART AEROSPACE LTD		Work Order: 139623
Description: Bearpaw		Part Number: D3529-1
Inspection Dwg: D3529	Rev: A	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
A 5.50	+/-0.030	5.502	/		Vern	FK-04
B 0.07 x 45°	+/-0.030 x 0.5°	0.07 x 45°	/		"	"
C R0.25	+/-0.030	.25	/		R-G.	
D 0.250	+/-0.010	.243	/		Mic	FK-01
E 0.625	+/-0.010	.620	/		Vern	FK-04
F 0.950	+/-0.010	.953	/		"	"
G 1.63	+/-0.030	1.617	/		"	"
H 12.14	+/-0.030	12.14	/		Tape	FK-05
I						
J 5.70	+/-0.030	5.70	/		Vern	FK-04
K 0.375	+/-0.010	.374	/		"	"
L 0.525	+/-0.010	.520	/		"	"
M 0.13 x 45°	+/-0.030 x 0.5°	.13 x 45°	/		"	"
N R0.50	+/-0.030	.50	/		R-G.	
O 12.76	+/-0.030	12.76	/		Tape	FK-05
P 3.38	+/-0.030	3.38	/		Vern	FK-04
Q 3.75	+/-0.030	3.752	/		"	"
R 5.187	+/-0.010	5.189	/		"	"
S 5.25	+/-0.030	5.253	/		"	"
T 7.13	+/-0.030	7.13	/		Vern	FK-08
U Ø0.260	+0.006/-0.001	.259	/		"	"
V 0.30	+/-0.030	.307	/		"	"
W 0.93	+/-0.030	.931	/		"	"
X 1.30	+/-0.030	1.30	/		"	"

Measured by: DAS 44 9-89	Audited by: DAS 20 9-89	Prototype Approval:	N/A	
Date: 16/02/18	Date: 16-02-19	Date:	N/A	
Rev	Date	Change	Revised by	Approved
A	07.05.01	New Issue	KJ/JLM	
B	08.05.06	Dimension I removed	KJ/DD	

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

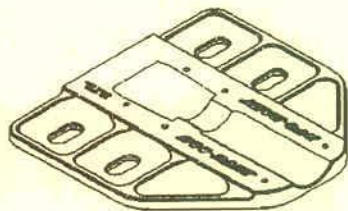
QA Closed: _____ Date: _____

Work Order update only ☐

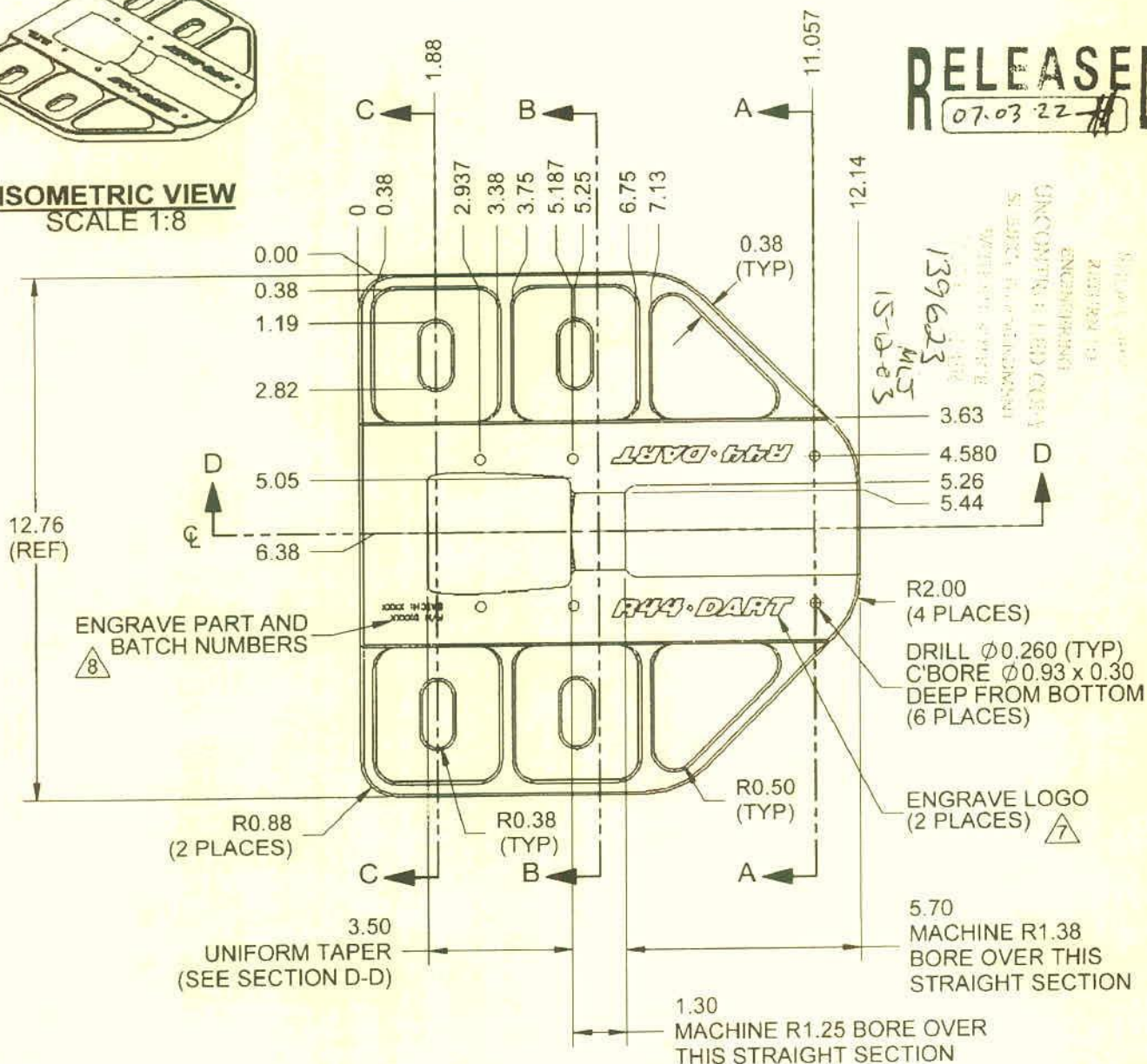
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval			
Description Work Order Deviation				Disposition							
Root Cause		FAULT CATEGORY									
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐						
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐						
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐						
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐						
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐						
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐						
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐						
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐						
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐						
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐						
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____									
Misidentified ☐	Past Due ☐										



DESIGN CB	DRAWN BY CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D3529	REV. A SHEET 1 OF 2
DATE 07.01.04	TITLE R44 BEARPAW	SCALE 1:4	
REV A	DATE 07.01.04	DESCRIPTION NEW ISSUE	



ISOMETRIC VIEW
SCALE 1:8



D3529-1 R44 BEARPAW

NOTES:

- 1) MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689, 1.00 THICK (MACHINE TO 0.950)
- 2) FINISH: NONE
- 3) PART IS SYMMETRIC ABOUT ϕ
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.010 MAX
- 7) ENGRAVE LOGO TO MAX DEPTH OF 0.012 AT LOCATION SHOWN
- 8) ENGRAVE PART AND BATCH NUMBERS TO MAX DEPTH OF 0.010 AT LOCATION SHOWN

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DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

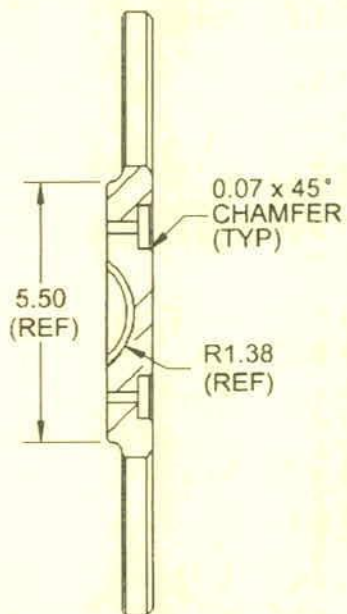
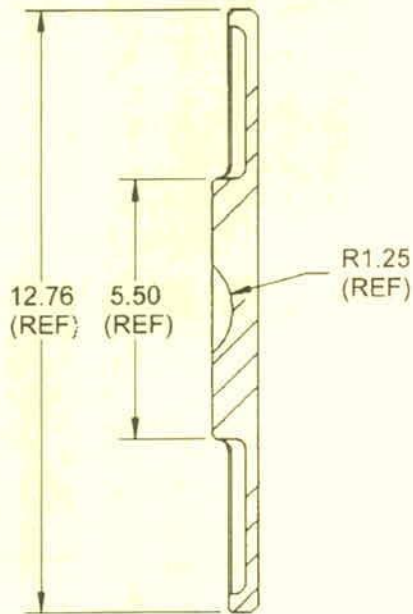
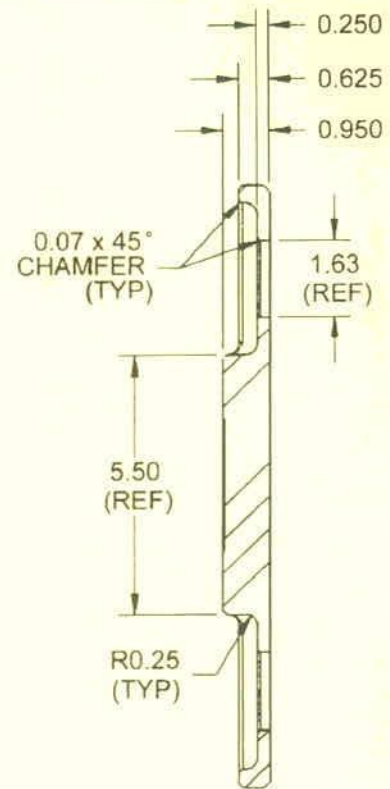
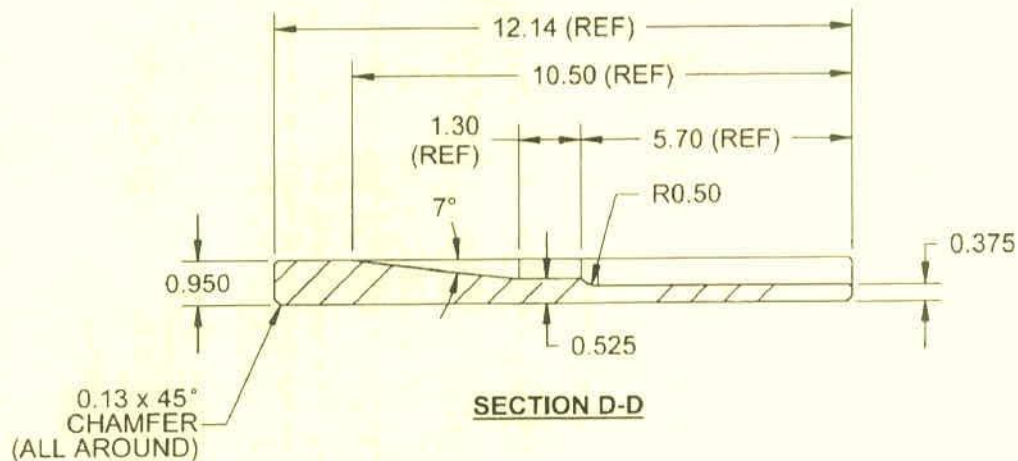
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
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Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							

DART

DESIGN CB	DRAWN BY CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO D3529	REV. A SHEET 2 OF 2
DATE 07.01.04	TITLE R44 BEARPAW		SCALE 1:4

RELEASED
07 03 22**SECTION A-A****SECTION B-B****SECTION C-C****SECTION D-D****COPYRIGHT © 2007 BY DART AEROSPACE LTD**

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
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Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								